

REMARKS

The Office Action

Claims 30-51 are pending. The Office has objected to the drawings for not depicting every feature of the invention specified in the claims. Claim 37 is objected to for informality. Claims 44-47 stand rejected for indefiniteness. Claim 48 stands rejected for anticipation by Daftary (U.S. Patent No. 5,213,502), and claim 49 stands rejected for anticipation by Jorneus (U.S. Patent No. 5,259,759). Claims 30-32, 35-39, and 41-42 stand rejected for obviousness over Beaty et al. (U.S. Patent No. 5,685,714; hereafter “Beaty ‘714”) in view of Forsmalm et al. (U.S. Patent No. 5,584,694; hereafter “Forsmalm”); claims 33-34 stand rejected for obviousness over Beaty ‘714 in view of Forsmalm and Kumar et al. (U.S. Patent No. 6,447,295; hereafter “Kumar”); claim 40 stands rejected for obviousness over Beaty ‘714 in view of Forsmalm and Gahlert (U.S. Patent Publication No. 2005/0106534); claim 43 stands rejected for obviousness over Beaty ‘714 in view of Forsmalm and Beaty et al. (U.S. Patent No. 5,674,071; hereafter “Beaty ‘071”); claims 44-47 stand rejected for obviousness over Kumar in view of Forsmalm; claims 50 stands rejected for obviousness over Jorneus in view of Singer (U.S. Patent No. 5,813,858); and claim 51 stands rejected for obviousness over Jorneus.

Amendments to the Claims

New claims 52-56 find support at page 9, lines 16-21; page 13, lines 23-27; and page 14, lines 14-22.

The Drawings

Proposed replacement sheets for figures 1 and 2 are enclosed herewith. These amended figures show a flat-to-flat connection, the anchorage part as a separate cylinder, and an abutment. The figure captions have also been amended for consistency with the amendments to the drawings. Support for the amendments is found through the specification and drawings as filed. No new matter has been added.

Formal drawings will be submitted once the amendments are approved by the Examiner.

Specification

The specification has been amended to delete the hyperlink as requested by the Office.

Claim Objection

Claim 37 has been amended as requested by the Office, and the objection is now moot.

Rejections under 35 U.S.C. § 112, second paragraph

Claim 44 from which claims 45-47 depend has been amended to change “the anchorage part” to “an anchorage part.” The rejection is now moot.

Rejections under 35 U.S.C. § 102

Claims 48 and 49 stand rejected for anticipation based on Daftary and Jorneus. These claims have now been amended to clarify that the flat portion of the impression coping (claim 48) and the flat portion of the burn-out cylinder (claim 49) form a flat-to-flat interface with the implant or implant replica. As is noted in the specification, a flat-to-flat interface does not include a protrusion from one component that interlocks with a recess in the other component as depicted, for example, in instant Figure 5. The present amendments were made to expedite prosecution, and applicant reserves the right to pursue any cancelled subject matter in this or in a continuing application. No new matter has been added.

In contrast to the flat-to-flat interfaces recited by amended claims 48 and 49, Daftary and Jorneus teach interlock interfaces. For example, Daftary states, “The proximal end **114** of the coping member has a female hexagonal interface **128**.” (col. 5, ll. 29-30) Daftary further teaches that this female interface engages with a corresponding male hexagonal interface **168** in the implant fixture. (col. 7, ll. 25-32). Similarly, Jorneus teaches a cylinder **9** that includes a “conical recess **13**’ inside which the conical upper part of the cylinder is accommodated.” (col. 3, ll. 30-33) Since both Daftary and Jorneus teach interlock interfaces and not flat-to-flat interfaces as recited in claims 48 and 49, the references do not anticipate the claims, and the rejection should be withdrawn.

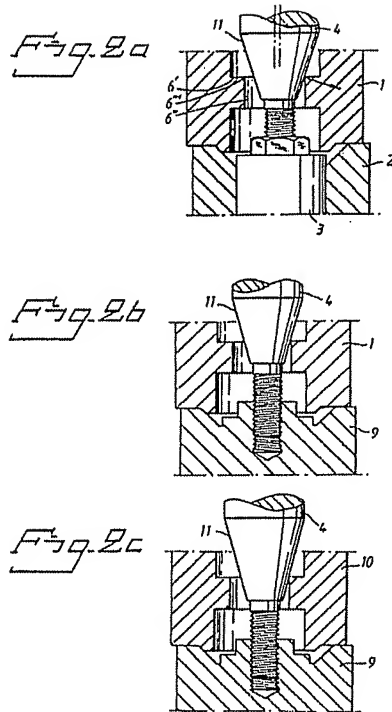
Rejections under 35 U.S.C. § 103

Claim 30 and its dependent claims stand rejected for obviousness over Beaty '714 in view of Forsmalm alone or further in view of Kumar, Gahlert, or Beaty '071.

Independent claim 30 is directed to a combination of a dedicated dental implant or implant assembly, a prosthesis, and a retaining screw, where the interface between the prosthesis and the implant is a flat-to-flat connection.¹ As discussed above, a flat-to-flat connection does not employ a protrusion from one component that engages with a corresponding recess in another component.

The Office acknowledges that Beaty '714 does not teach a flat-to-flat connection and relies on Forsmalm to teach this element, stating that a flat-to-flat connection is shown in Fig. 2a. Applicants disagree. Figs. 2a-2c (reproduced below) show an interlock interface and not a flat-to-flat interface as presently claimed. In all three figures, the impression top 1 or gold cylinder 10 includes protrusions that extend into a recess in the distance member 2 or distance dummy 9. Since neither reference teaches or suggests a key element of claim 30, the rejection should be withdrawn.

¹ Claim 35 has been redrafted in independent form as it was not properly dependent from claim 30.



Forsmalm Figures 2a-2c

Moreover, claim 31 depends from claim 30 and recites that the combination allows for lateral movements of the prosthesis on the implant of about 0.4 to about 1.4 mm. The Office rejected this claim by relying on M.P.E.P. § 2144.05, reasoning that it is not inventive to discover the optimum or workable ranges when the general conditions are known. Applicants submit that the Office has inadvertently overlooked the express teachings on Forsmalm regarding the general conditions of lateral misalignment in dental implants. First, the entire point of the invention in Forsmalm is to reduce error made during the impression process (see col. 4, ll. 25-32). Forsmalm further teaches that the residual error can be compensated for using intentional clearance between a gold cylinder and distance member (col. 4, ll. 28-32). This residual error is, however, in the range of 0.05-0.2 mm (col. 4, ll. 22-24). That is, the greatest lateral

movement desired in Forsmalm is less than half that required by claim 31, at a minimum. Given this large discrepancy in the values taught in the prior art and those claimed, it cannot be said the Applicants merely optimized the general conditions found in the prior art. Instead, Applicants have proceeded in a direction away from Forsmalm by allowing for much larger lateral movements than previously contemplated. This rejection should be withdrawn.

In addition, claim 32 requires that the diameter of the neck of the retaining screw be smaller than the diameter of the hole in the anchorage part by about 0.04 to 1.2 mm. In rejecting this claim, the Office again relies on M.P.E.P. § 2144.05. The difference in diameter between the hole and the neck allows for lateral movement of the prosthesis relative to the implant by about 0.04 to 1.2 mm. As with claim 31, Applicants submit that neither Beaty '714 nor Forsmalm suggest such an amount of lateral movement. This rejection should also be withdrawn.

Claim 42 is directed to the combination of claim 30 further including an impression coping. The claim has been amended to clarify that the impression coping has a flat surface for making a flat-to-flat connection with the implant or assembly. While acknowledging that Beaty '714 does not teach this element, the Office asserts that Forsmalm teaches an impression coping having a flat surface in Fig. 2a. As discussed above for claim 30, Fig. 2a in Forsmalm shows an interlock interface between an impression top and a distance member and not a flat-to-flat interface as instantly claimed. As neither reference teaches or suggests this element of claim 42, the rejection should be withdrawn.

Amended claim 43 is directed to the combination of claim 30 further comprising an implant replica having a flat proximal surface for a flat-to-flat connection with the prosthesis or impression coping. The Office has relied on Fig. 7 in Beaty '071 to teach such a replica. Applicants disagree as the replica depicted in Fig. 7 has a protrusion and therefore does not have a flat surface for a flat-to-flat connection. This rejection should also be withdrawn.

As the combination of Beaty '714 and Forsmalm fails to teach or suggest the limitations of independent claim 30, it is not necessary to address the rejection of the remaining dependent claims. Applicants reserve the right to do so in reply to future actions.

Claim 35 has been amended to be in independent form. The claim is directed to a combination similar to that of claim 30 except that the interface between the prosthesis and the implant in claim 35 is a tolerance interlock and not a flat-to-flat connection. The claim has been further amended to specify that the tolerance interlock allows for lateral adjustment of 0.4 to 1.4 mm. While Forsmalm provides for lateral adjustment, the amount of adjustment is only 0.05 to 0.2 mm, which as described above is much smaller than that instantly claimed. And, as with claims 31 and 32, the lateral displacement provided by the present invention is not merely the optimization of general working conditions provided by the prior art. The rejection should be withdrawn.

The Office has rejected claims 44-47 based on the combination of Kumar and Forsmalm. Claim 44 is directed to a retaining screw having, inter alia, a neck with a diameter smaller than the hole in the anchorage part of a prosthesis by about 0.4 to 1.2

mm. The interface is further described as being flat-to-flat. In rejecting the claim, the Office again relies on M.P.E.P. § 2144.05 and further states that Forsmalm teaches the compensation of lateral misalignments. Applicants traverse the rejection. As discussed above, neither Kumar nor Forsmalm teaches a flat-to-flat interface between a prosthesis and an implant. Furthermore, while Forsmalm describes the need for lateral movement, the reference states a range of 0.05 – 0.2 mm, which is significantly smaller than that instantly claimed. Thus, claim 44 and its dependent claims are patentable.

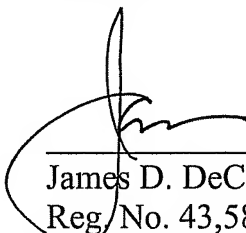
The rejections of claims 50-51 for obviousness over Jorneus rely on the anticipation rejection of claim 49. As stated above, however, Jorneus does not teach a flat-to-flat interface and does not anticipate claim 49. Furthermore, the reference does not suggest such an interface. Since the cited references do not teach or suggest the limitations of independent claim 49, dependent claims 50-51 are also patentable. This final basis of the rejection should also be withdrawn.

CONCLUSION

Applicants submit that the claims are in condition for allowance, and such action is respectfully requested. Enclosed is a petition to extend the period for reply for three months, to and including June 5, 2008. If there are any charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

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